

**IN THE CLAIMS:**

Please CANCEL without prejudice or disclaimer claims 1-20 the underlying PCT application and ADD new claims 21-38 in accordance with the following:

Claims 1-20 (cancelled)

21. (new) A method for determining a selected position of a mobile communications device in a communications network having at least one base station, comprising:

determining a possible location area of the mobile communications device by applying a non-linear Bayesian filter technique in which a non-Gaussian probability density is approximated by Gaussian mixture densities; and

determining a selected position of the mobile communications device within the possible location area using a first communications signal of a first base station associated with the possible location area and using a non-linear communications model with a deterministic component and a stochastic component, the deterministic component describing a dependency between communications signals of the first base station and positions of the mobile communications device and the stochastic component describing an uncertainty of the deterministic component.

22. (new) A method in accordance with claim 21,

wherein said at least one base station includes a second base station, set up for a second communication with the mobile communications device by a second communications signal, and

wherein said determining of the selected position uses at least one of the first communications signal and the second communications signal together with the non-linear communications model.

23. (new) A method in accordance with claim 22, wherein said determining of the possible location area includes determining at least one distance-dependent parameter depending on a distance between the mobile communications device and at least one of the first and second base stations using at least one of the first and second communications signals.

24. (new) A method in accordance with claim 23, wherein the uncertainty of the deterministic component includes at least one of uncertainty of the communications signals caused by measurement noise and uncertainty of the non-linear communications model.

25. (new) A method in accordance with claim 24, wherein the first communications signal is at least one of time-dependent and measured for a point in time k.

26. (new) A method in accordance with claim 25, wherein the non-linear Bayesian filter technique is applied iteratively.

27. (new) A method in accordance with claim 26, wherein one of a Gaussian mixed filter algorithm and an extended Kalman filter is used in the non-linear Bayesian filter technique.

28. (new) A method in accordance with claim 27, wherein the Gaussian mixed filter algorithm is a Prior Density Splitting Mixture Estimator.

29. (new) A method in accordance with claim 28, wherein said determining of the selected position further uses a user model describing a movement of the mobile communications device.

30. (new) A method in accordance with claim 29, wherein in the user model, the movement of the mobile communications device is limited for a time step.

31. (new) A method in accordance with claim 30, wherein said determining of the selected position determines an estimated position for the selected position using the user model.

32. (new) A method in accordance with claim 31, wherein the estimated position is determined by applying the non-linear Bayesian filter technique.

33. (new) A method in accordance with claim 32, wherein the estimated position is used as a starting value for said determining of the possible location area of the selected position through the application of the non-linear Bayesian filter technique.

34. (new) A method in accordance with claim 33, wherein the communications network is a WLAN, GSM or DECT network.

35. (new) A method in accordance with claim 34, wherein one of a focal point and an expected value of the possible location area is used as the selected position of the mobile communications device.

36. (new) A method in accordance with claim 35,  
wherein the mobile communications device is a mobile telephone in a digital cellular mobile radio network and the first base station is a call-controlling base station in the digital cellular mobile radio network, and

wherein said determining of the selected position enables localization of the mobile telephone.

37. (new) A configuration for determining a selected position of a mobile communications device in a communications network having at least one base station, comprising:

a position-determining unit determining a possible location area of the mobile communications device by applying a non-linear Bayesian filter technique in which a non-Gaussian probability density is approximated by Gaussian mixture densities and determining a selected position of the mobile communications device within the possible location area using a first communications signal of a first base station associated with the possible location area and using a non-linear communications model with a deterministic component and a stochastic component, the deterministic component describing a dependency between communications signals of the first base station and positions of the mobile communications device and the stochastic component describing an uncertainty of the deterministic component.

38. (new) At least one computer readable medium storing instructions that when executed control a computer to perform a method for determining a selected position of a mobile communications device in a communications network having at least one base station, comprising:

determining a possible location area of the mobile communications device by applying a non-linear Bayesian filter technique in which a non-Gaussian probability density is approximated by Gaussian mixture densities; and

determining a selected position of the mobile communications device within the possible location area using a first communications signal of a first base station associated with the possible location area and using a non-linear communications model with a deterministic

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component and a stochastic component, the deterministic component describing a dependency between communications signals of the first base station and positions of the mobile communications device and the stochastic component describing an uncertainty of the deterministic component.